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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,122	08/24/2001	Stepan Sokolov	SUN1P828/P6116	3338

22434	7590	12/23/2003

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EXAMINER
GROSS, KENNETH A

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,3* .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: .

DETAILED ACTION

Specification

1.   The use of the trademark "JAVA" has been noted in this application. It should be

capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary

nature of the marks should be respected and every effort made to prevent their use in any manner

which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-4, 13-14, and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by

Blandy et al. (U.S. Patent Number 6,412,108).

In regard to claim 1, Blandy teaches: (a) reading a stream of Java bytecode instructions

(Column 6, lines 31-39); (b) determining whether two or more Java bytecode instructions in said

Java bytecode stream can be represented by one instruction (Column 5, lines 46-48); (c)

generating a Java macro instruction that represents said two or more Java bytecode instructions

when said determining determines that two or more Java bytecode instructions in said Java

bytecode stream can be represented by one instruction (Column 5, lines 46-61); (d) wherein said

Java macro instruction is suitable for execution by a Java virtual machine, and (e) wherein, when

executed, said Java macro instruction can operate to perform one or more operations that are

performed by said two or more Java bytecode instructions (Column 5, lines 58-61).

In regard to Claim 2, Blandy teaches that said determining operates to determine whether

a predetermined sequence of two or more Java bytecode instructions has been found (Column 5,

lines 46-48).

In regard to Claim 3, Blandy teaches reading bytecode instructions during Java bytecode

verification by a virtual machine (Column 4, lines 10-14, 39-42, and 48-53).

In regard to Claim 4, Blandy teaches replacing two or more instructions with a Java

macro instruction and representing the macro instruction internally with a macro name (in this

case 'iconst_1_then_iadd') (Column 5, lines 50-58).

In regard to claim 13, Blandy teaches: (a) reading a stream of Java bytecode instructions

(Column 6, lines 31-39) during Java bytecode verification (Column 4, lines 10-14, 39-42, and

48-53); (b) determining whether two or more Java bytecode instructions in said Java bytecode

stream can be represented by one instruction (Column 5, lines 46-48); (c) generating a Java

macro instruction that represents said two or more Java bytecode instructions when said

determining determines that two or more Java bytecode instructions in said Java bytecode stream

can be represented by one instruction (Column 5, lines 46-61); (d) wherein said Java macro

instruction is suitable for execution by a Java virtual machine, and (e) wherein, when executed,

said Java macro instruction can operate to perform one or more operations that are performed by

said two or more Java bytecode instructions (Column 5, lines 58-61).

Claims 14 and 18 contain limitations that have been previously addressed in Claim 2, and

Claims 14 and 18 are rejected for the same reasons as Claim 2.

Claim 16 is a system Claim that corresponds with Claim 13, and Claim 16 is rejected for

the same reasons as Claim 13, where Blandy teaches a system for carrying out said method of

Claim 13 (Figure 1).

Claim 17 contains limitations that have been previously addressed in Claim 3, and Claim

17 is rejected for the same reasons as Claim 3.

Claim 19 contains limitations that have been previously addressed in Claim 4, and Claim

19 is rejected for the same reasons as Claim 4.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 5, 6, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Blandy et al. (U.S. Patent Number 6,412,108) in view of "Programming Models" by Stefano

Tommesani, 2001, Source: http://www.tommesani.com/ProgrammingModels.com (hereinafter

Tommesani).

In regard to Claim 5, Blandy teaches the method of Claim 4, but does not teach that the

internal representation is a pair of streams. Tommesani, however, does teach representing

processing of a machine through an architecture known as SISD, which teaches a two-stream

representation of processing in the form of an instruction stream and a data stream (Page 1).

Storing the macro in a data stream would be beneficial since this stream holds information

regarding the steps that the macro name carries out. Therefore, it would have been obvious to

one of ordinary skill in the art at the time of the invention to perform the method of Claim 4, as

taught by Blandy, where the internal representation is a pair of streams, since this involves a

SISD machine structure, which comprises a pair of streams, which can be emulated by a virtual

machine.

In regard to Claim 6, Tommesani teaches a code stream suitable for containing a code

portion, and a data stream, suitable for containing data (Page 1).

Claim 20 contains limitations that have been previously addressed in Claim 5 and Claim

20 is rejected for the same reasons as Claim 5.

5.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blandy et al. (U.S.

Patent Number 6,412,108).

In regard to Claim 7, Blandy teaches: (a) reading a stream of Java bytecode instructions

(Column 6, lines 31-39); (b) determining whether two or more Java bytecode instructions in said

Java bytecode stream can be represented by one instruction (Column 5, lines 46-48); (c)

generating a Java macro instruction that represents said two or more Java bytecode instructions

when said determining determines that two or more Java bytecode instructions in said Java

bytecode stream can be represented by one instruction (Column 5, lines 46-61); (d) wherein said

Java macro instruction is suitable for execution by a Java virtual machine, and (e) wherein, when

executed, said Java macro instruction can operate to perform one or more operations that are

performed by said two or more Java bytecode instructions (Column 5, lines 58-61). Although

Blandy does not specifically teach counting the number of times a sequence of two or more Java

bytecode instructions appears in said instruction stream, Blandy does teach performing an

optimization of a sequence of instructions occur "very frequently" (Column 5, lines 46). In order

to determine sequences of instructions that occur frequently, it would be obvious to count the

number of times the sequence of instructions in the instruction stream to determine whether or

not the sequence is to be optimized.

6.   Claims 8-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Blandy et al. (U.S. Patent Number 6,412,108) in view of Bagley et al. (U.S. Publication Number

2002/0170043).

In regard to Claim 8, Blandy teaches the method of Claim 7, and further teaches

optimizing sequences that occur "very frequently", but does not specifically teach determining

that the sequence has been counted for at least a predetermined amount of times. Bagley,

however, does teach the concept of a "threshold", which sets a predetermined frequency to an

instruction count before the instruction is optimized (Page 4, Column 1, lines 54-65). Therefore,

it would have been obvious to one of ordinary skill in the art at the time of the invention to

perform the method of Claim 7, further determining whether said sequence has been counted for

at least a predetermined number of times, as taught by Bagley, since this allows a user to set an

optimization level which determines exactly when sequences of instructions need to be

optimized.

Claims 9 and 10 contain limitations that have already been addressed in Claims 3 and 4

respectively, and Claims 9 and 10 are rejected for the same reasons as Claims 3 and 4

respectively.

In regard to Claim 15, although Blandy does not specifically teach counting the number of times a sequence of two or more Java bytecode instructions appears in said instruction stream, Blandy does teach performing an optimization of a sequence of instructions occur "very frequently" (Column 5, lines 46). In order to determine sequences of instructions that occur frequently, it would be obvious to count the number of times the sequence of instructions in the instruction stream to determine whether or not the sequence is to be optimized. Blandy does not teach determining that the sequence has been counted for at least a predetermined amount of times. Bagley, however, does teach the concept of a "threshold", which sets a predetermined frequency to an instruction count before the instruction is optimized (Page 4, Column 1, lines 54-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 13, further determining whether said sequence has been counted for at least a predetermined number of times, as taught by Bagley, since this allows a user to set an optimization level which determines exactly when sequences of instructions need to be optimized.

7.   Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blandy et al. (U.S. Patent Number 6,412,108) in view of Bagley et al. (U.S. Publication Number 2002/0170043) and further in view of "Programming Models" by Stefano Tommesani, 2001, Source: http://www.tommesani.com/ProgrammingModels.com (hereinafter Tommesani).

Claims 11 and 12 contain limitations that have already been addressed in Claims 5 and 6 respectively, and Claims 11 and 12 are rejected for the same reasons as Claims 5 and 6 respectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542.

The examiner can normally be reached on Mon-Fri 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the

organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

KAG

TUAN DAM
SUPERVISORY PATENT EXAMINER